

REMARKS

This Amendment and Response is submitted in response to the Office Action mailed 29 NOVEMBER 2002. Withdrawal of the rejection and reconsideration with an eye toward allowance is respectfully requested.

Claim Status

Claims 1-5, 8-18, 20-30, 34, 37-44, 49-61, 64-68, and 74-75 are pending. Claims 1-80 stand rejected. Claims 1-2, 34, 44, 74, and 75 are amended herein and claims 6-7, 19, 31-33, 35-36, 45-48, 62-63, 69-73, and 76-80 cancelled. The claim amendments are presented in a revised format per the USPTO's announcement 'Amendments in a Revised Format Now Permitted', signed 31 January 2002, and accordingly do not conform to the current reading of 37 C.F.R. §1.121, which Applicants understand has been waived. Accordingly, a complete listing of all claims that are, or were in the application, along with an appropriate status identifier, is provided above in the section entitled "Amendments to the Claims". Markings are provided on claims amended in the present amendment.

Support for the above claim amendments can be found throughout the originally filed specification and claims, for example on pages 9-10 and 13.

Information Disclosure Statement

Applicants note that the information disclosure statement filed 6/27/02 has been placed in the file, but not considered. Applicants submit a copy of the 6/27/02 information disclosure statement herewith, along with copies of the references that were not crossed-out by the Examiner as duplications of art already cited.

Claim Rejections –35 U.S.C. §102

Claims 1-2, 6-30, 33-46, 48-51 and 53-77 were rejected under 35 U.S.C. §102(e) as being anticipated by Kayyem et. al. (US Patent 6,290,839 B1).

As a preliminary matter, claims 6-7, 19, 33, 36, 46, 48, 62-63, 69-73, and 76-77 have been cancelled, obviating the rejection.

Kayyem discloses an apparatus for detection of analytes comprising two sets of electrodes – an electrophoresis set and a detection set (see Kayyem Figs. 1A-F and col. 2, lines 40-42). Each detection electrode corresponds to a test site. Assay complexes generated by Kayyem include electron transfer moieties (see col. 6, lines 18-20).

In contrast, Applicants' amended claims 1 and 2 recite a set of input electrodes, each in contact with a plurality of test sites; a set of output electrodes, each in contact with a plurality of test sites, a multiplexor, and a demultiplexor. In an analogous manner, claim 64 recites selecting an input electrode in

contact with a plurality of test sites including a specific test site and selecting an output electrode in contact with a plurality of test sites including the specific test site. In further contrast with Kayyem, claim 64 recites forming a bound complex that does not include a reporter group.

As the Examiner is aware, for a reference to anticipate a claim, the reference must teach every element of the claim (see M.P.E.P §2131).

Applicants respectfully submit that Kayyem does not disclose all elements of Applicants' claims 1 and 2 including a set of output electrodes, each in contact with a plurality of test sites, a set of input electrodes, each in contact with a plurality of test sites, a multiplexor, and a demultiplexor. Kayyem is silent with respect to these features. Accordingly, Applicants submit that the 35 U.S.C. §102(e) rejection of claims 1 and 2 over Kayyem is improper and should be withdrawn.

Claims 8-18, 20-30, 34-35, 37-45, 49-51, and 53-61 depend from and include all limitations of Applicants' claim 1 or 2. Accordingly, at least for the reasons discussed above with regard to claims 1 and 2, Applicants submit that claims 8-18, 20-30, 34-35, 37-45, 49-51, and 53-61 are patentably distinct over Kayyem, and the 35 U.S.C. §102(e) rejection is improper and should be withdrawn.

Applicants further submit that Kayyem does not disclose all elements of Applicants' claim 64 including selecting an output electrode in contact with a plurality of test sites, selecting an input electrode in contact with a plurality of test sites, and forming a bound complex that does not comprise a reporter group. Accordingly, Applicants submit that the 35 U.S.C. §102(e) rejection of claim 64 over Kayyem is improper and should be withdrawn.

Further, claims 65-68 and 74-75 depend from and include all limitations of Applicants' claim 64. Accordingly, at least for the reasons discussed above with regard to claim 64, Applicants submit that claims 65-68 and 74-75 are patentably distinct over Kayyem, and the 35 U.S.C. §102(e) rejection is improper and should be withdrawn.

Claim Rejections – 35 U.S.C. §103

Claims 3-77 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kayyem et. al. in view of Roberts et. al. (U.S. Patent Number 5,958,791).

As a preliminary matter, Applicants note that claims 6, 7, 19, 31-33, 36, 46-48, 62-63, 69-73, and 76-77 have been cancelled, obviating the rejection.

Kayyem is discussed above.

Roberts discloses a test device having interdigitated electrodes. The device relies on electrochemical detection of an electroactive marker (see col. 9, lines 36-37 and col. 21, lines 36-38). A test strip is placed in a solution, and as the solution traverses the absorbent strip, electroactive markers may be released that traverse a set of interdigitated electrodes (see FIG. 1 and col. 15, lines 45-66). A set of interdigitated electrodes is provided that traverses a single test strip (see FIG. 1).

In contrast, Applicants' claims 3-63 depend from and include all limitations of Applicants' claims 1 or 2, including a set of input electrodes, each in contact with a plurality of test sites, a set of output electrodes, each in contact with a plurality of test sites, a multiplexor, and a demultiplexor.

Applicants note that to establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference teachings. Further, cited reference (or references when combined) must teach or suggest all the claim limitations. (See M.P.E.P. §2142).

First, Applicants respectfully submit that the necessary suggestion or motivation to modify or combine the reference teachings is lacking. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Examiner suggests that it would have been obvious to modify the apparatus of Kayyem by interdigitating the output and input electrodes as taught by Roberts for the advantage of increasing signal detection.

However, Applicants submit that this is a legally incorrect determination of motivation. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F 2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). There is no suggestion in either reference of modifying or combining the references to reach the claims of the present invention. That is, while Roberts describes interdigitated electrodes, both references – alone or in combination – fail to suggest or motivate the use of interdigitated electrodes in an apparatus having a set of input electrodes, each is in contact with a plurality of test sites, and a set of output electrodes, each in contact with a plurality of test sites, as recited in Applicants' claims 1, 2, and 64.

Accordingly, Applicants submit that the required motivation to combine the teachings of Kayyem and Roberts is lacking, and the 35 U.S.C. §103(a) rejection of claims 3-77 should be withdrawn.

Moreover, Applicants submit that Kayyem and Roberts fail to disclose all limitations of Applicants' 1, 2, and 64 – from which claims 3-77 depend.

Applicants submit, as described above, that Kayyem and Roberts fail to disclose a set of input electrodes, where each electrode is in contact with a plurality of test sites, a set of output electrodes, where each electrode is in contact with a plurality of test sites, a multiplexor, and a demultiplexor, as recited in claims 1 and 2. Further, claims 1 and 2 recite a conjugated polymer. Kayyem and Roberts are silent with respect to at least these features. Claims 3-77 depend from and include all limitations of claim 1, 2, or 64. Accordingly, Applicants submit that the 35 U.S.C. §103(a) rejection of claims 3-77 over Kayyem in view of Roberts is improper and should be withdrawn.

Claims 1-63 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sosnowski et. al. (U.S. Patent Number 6,051,380) in view of Roberts.

Sosnowski discloses an array of test sites, each having an individual electrode (see, for example, Sosnows. Sosnowski states that the array is 'self-addressable', meaning that binding entities may be concentrated on a specific microlocation by maintaining the selected microlocation in a DC mode at the opposite charge to that of the specific binding entity (see Sosnowski, col. 28, lines 14-17 and lines 44-48). That is, by applying a particular polarity to an individual electrode, particular binding entities can be attracted toward, or repelled away from, the electrode.

Roberts is discussed above.

In contrast, Applicants' claims 1 and 2 recite a set of input electrodes, each in contact with a plurality of test sites, a set of output electrodes, each in contact with a plurality of test sites, a multiplexor, and a demultiplexor. Further, claims 1 and 2 recite conjugated polymers.

Applicants note that to establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference teachings. Further, cited reference (or references when combined) must teach or suggest all the claim limitations. (See M.P.E.P. §2142).

First, Applicants respectfully submit that the necessary suggestion or motivation to modify or combine the reference teachings is lacking. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Examiner suggests that it would have been obvious to modify the apparatus of Sosnowski by interdigitating the output and input electrodes as taught by Roberts for the advantage of increasing signal detection.

However, Applicants submit that this is a legally incorrect determination of motivation. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F 2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). There is no suggestion in either reference of modifying or combining the references to reach the claims of the present invention. That is, while Roberts describes interdigitated electrodes, both references – alone or in combination – fail to suggest or motivate the use of interdigitated electrodes in an apparatus having a set of input electrodes, each in contact with a plurality of test sites, and a set of output electrodes, each in contact with a plurality of test sites, as recited in Applicants' claims 1 and 2.

Moreover, Applicants submit that neither Sosnowski nor Roberts discloses all claim limitations recited in Applicants' claims 1 and 2, including a set of input electrodes, each in contact with a plurality of test sites, and a set of output electrodes, each in contact with a plurality of test sites, as recited in Applicants' claims 1 and 2. Sosnowski discloses an individual electrode for each test site. Roberts discloses one individual set of interdigitated electrodes per test site. Further, neither Roberts nor Sosnowski disclose a conjugated polymer on the electrode. Accordingly, Applicants submit that neither Sosnowski nor Roberts, nor the references in combination disclose all elements of Applicants' claims 1 and 2.

Claims 3-63 depend from or include all limitations of Claims 1 or 2, accordingly, Applicants submit that, at least for the reasons described above with regard to claims 1 and 2, claims 3-63 are patentable over Sosnowski and Roberts.

Accordingly, Applicants submit that the 35 U.S.C. §103(a) rejection of claims 1-63 over Sosnowski in view of Roberts is improper and should be withdrawn.

Claim Rejections – 35 U.S.C. §112

Claims 1-80 were rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner states that the claim language 'wherein each input electrode is arranged such that a first portion of the input electrode is in contact with a test site and a second portion of the input electrode is in contact with a different test site' has no clear support in the specification.


Applicants have amended claims 1 and 2 for technical clarity to recite input electrodes, each in contact with a plurality of test sites, and output electrodes, each in contact with a plurality of test sites. Applicants submit that support for this claim language can be found at least on page 11, lines 1-3. Further, support for the claim language can be found in the Figures, for example, FIGS. 1 and 3, where a plurality of input electrodes are shown, each in contact with a plurality of test sites, and a plurality of output electrodes are shown, each in contact with a plurality of test sites. Applicants respectfully submit that information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter (M.P.E.P. §2163.06). Applicants note that drawings alone may provide "written description" of the invention, as required by U.S.C. §112 (See Vas-Cath Inc v. Mahurkar 19 USPQ2d 1111). Accordingly, at least insofar as FIGS. 1 and 3 depict a set of input electrodes, each in contact with a plurality of test sites, and a set of output electrodes, each in contact with a plurality of test sites, Applicants submit that no new matter has been entered, and the amended claims find written description support in the application as filed. Accordingly, Applicants submit that the 35 U.S.C. §112 rejection of claims 1-80 should be withdrawn.

CONCLUSION

Applicants submit the claims are in condition for allowance, and notification of such is respectfully requested. If after review, the Examiner feels there are further unresolved issues, the Examiner is invited to call the undersigned at (415) 781-1989. While Applicant believes that no further fees are due at this time, the Commissioner is authorized to charge any fees that may be due as a result of filing this amendment, including additional claims fees not already paid for, or other fees that have not been separately paid, to Deposit Account 50-2319 (Order No. 469008-137 [A-70203/RMS/RMK/JML]).

Serial No.: 09/652,284
Filing Date: 31 AUGUST 2000

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Filed under 37 C.F.R. §1.34(a)

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